

ABSTRACT OF THE DISCLOSURE

A crystallization apparatus includes an image forming optical system which has an image side numerical aperture set to a value required to generate
5 a light intensity distribution with an inverse peak pattern and sets an amorphous semiconductor film and a phase shift mask to an optically conjugate relationship. The phase shift mask has a boundary area which extends along a first axial line, and a first area and
10 a second area which are arranged on both sides of the boundary area have a predetermined phase difference therebetween. The boundary area has a phase distribution which varies from a phase of the first area to a phase of the second area.